

13. A laminated roofing material according to claim 12 wherein the top surface layer of the overlay, and the top surface layer of the underlay on the uncovered portion of the underlay, are at least about 0.023 inch (0.058 cm) thick.

5 14. A laminated roofing material according to claim 12 wherein the entire top portion of the coating on the uncovered portion of the underlay is made with an asphalt having the viscoelastic properties.

10 15. A laminated roofing material according to claim 12 wherein the overlay further comprises a mat saturated and coated with the layer of asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, and wherein the entire top portion of the coating is made with an asphalt having the viscoelastic properties, and the bottom portion of the coating is made  
15 with an asphalt not having the viscoelastic properties.

16. An asphalt-based roofing material comprising:  
a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the  
20 mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer, and a layer of granules embedded in the top surface layer;

wherein at least the top surface layer of the top portion has an increased adhesion defined by a granule loss of less than 0.8 grams when the roofing  
25 material is soaked in water for seven days and then tested by ASTM Method D4977; and

wherein the bottom portion of the coating does not have the increased adhesion.

17. An asphalt-based roofing material comprising:

a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat;

5 wherein the bottom portion of the coating has an increased toughness compared to the top portion of the coating, such that the roofing material has an increased impact resistance of at least one UL 2218 class compared to the same roofing material having a bottom portion of the coating with the same toughness as the top portion.

10 18. A roofing material according to claim 17 wherein the roofing material has an increased impact resistance of at least two UL 2218 classes.

15 19. A roofing material according to claim 17 wherein the roofing material meets a UL 2218 Class 4 impact resistance standard.

20. An asphalt-based roofing material comprising:

20 a mat saturated and coated with an asphalt-based coating, the coating including a top portion covering the top of the mat, a mat portion saturating the mat, and a bottom portion covering the bottom of the mat, the top portion of the coating including a top surface layer, and a layer of granules embedded in the top surface layer;

25 wherein at least the top surface layer of the top portion has an increased adhesion defined by a granule loss of less than 0.8 grams when the roofing material is soaked in water for seven days and then tested by ASTM Method D4977; and

wherein the roofing material further comprises a web fused to the bottom portion of the coating, the roofing material having an increased impact resistance

of at least one UL 2218 class compared to the same roofing material without the web.

21. A continuous process of applying first and second asphalt-based  
5 coatings to a mat for manufacturing a roofing material, the process comprising:  
continuously moving a continuous mat along a path, the mat having a first  
surface and a second surface;

in a first coating operation, continuously applying a first asphalt-based  
coating to the first surface of the mat in a manner so that the first coating  
10 saturates the mat and forms a layer on the first surface; and then

in a second coating operation, continuously applying a second asphalt-  
based coating to the second surface of the mat in a manner so that the second  
coating forms a layer on the second surface, the second coating having different  
properties from the first coating.

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22. A process according to claim 21 wherein the first and second  
coating operations can be independently controlled in a dial-in mode in which  
control parameters are set once and do not require adjustment throughout the  
continuous process.

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23. A process according to claim 21 wherein the first surface of the  
mat is a bottom surface, and the first coating operation comprises applying the  
first coating to the bottom surface of the mat in a manner so that the first coating  
saturates the mat and forms a layer on the bottom surface.

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24. A process according to claim 23 wherein the mat is inverted before  
the first coating operation so that the bottom surface is oriented upward when  
applying the first coating.